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Research on the development of shipping alliance

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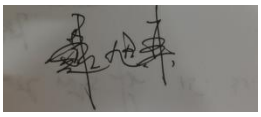
DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

Signature: 

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Abstract

Under the background of economic globalization, the trade between countries is more and more close, and the commodity exchange is more and more frequent. Compared with other modes of transportation, container transportation has the advantage of high efficiency. Large loading and unloading power, high utilization rate of transportation tools, high capital turnover rate, saving the cost of packaging and transportation. Using this mode of transportation can ensure the safety of cargo transportation. Container transportation greatly reduces the number of manual loading and unloading and handling in the traditional mode of transportation, which can avoid freight accidents caused by human and natural factors such as cargo damage, wet damage and loss, and reduce economic losses. Container liner shipping company refers to the shipping company that transports container cargo between at least two ports through regular round trip or detour of container ships. At present, the shipping market is still in the doldrums, and the transportation capacity is still relatively surplus. "Win win cooperation and group heating" has become an inevitable choice for shipping enterprises to deal with this problem. Through the formation of alliance, we can reduce the operating cost, reduce the investment risk, increase profits and improve the overall efficiency. The development of shipping alliance is the main research object of this dissertation.

Combined with the literature, China, as a shipping power, should strive to become a shipping power. This dissertation analyzes the development opportunities of port and shipping industry under the background of shipping alliance from the formation reasons, development process and route layout of shipping alliance, and forecasts the route layout and future planning of China's shipping enterprises represented by COSCO, so as to provide some reference for the development of China's port and shipping industry under the market downturn.

Key words: Shipping alliance, Container liner, Changes in ship routes, Market intensity, SWOT analysis.

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Chapter 1 Introduction

1.1 Research background

Compared with other transportation, container transportation is safer, more efficient and cheaper. Moreover, with the acceleration of economic globalization, the rapid growth of World Trade and the continuous improvement of container technology, more and more goods are transported in containers, and the containerization rate is increasing. Therefore, container transportation has become an important component of global commodity transportation, and liner transportation plays a very important role in container transportation.

In 2020, covid-19 has a profound impact on all aspects of the global society, and the changes in the epidemic situation are constantly changing the operation of commercial activities, manufacturing, logistics and transportation in the international trade system, and also have a greater impact on the container shipping market. According to the latest data of the United Nations Conference on Trade and development (UNCTAD), the scale of global container trade will drop by 5.7% in 2020, the speed of new ship capacity entering the market will remain stable, the imbalance between supply and demand of capacity will lead to soaring freight rates, and the market concentration will be further improved.

According to Alphaliner's latest statistics, as of January 2, 2021, the total capacity of global container ships was 24,225,334 TEU, an increase of 44,039 TEU compared with last month; The total number of container ships in operation is 6,167, two more than last month.

In the context of increasingly fierce international shipping competition and the gradual enlargement of ships, in order to reduce the operation cost, realize the scale economy, improve the competitiveness of liner companies and the right of discourse in negotiation, liner companies have formed alliances in succession, so as to realize complementary routes and affiliated ports in the field of transport services, coordination of ship period and mutual rent of accommodation. At present, the main global container alliances include the 2M alliance, the Alliance and the Ocean alliance.

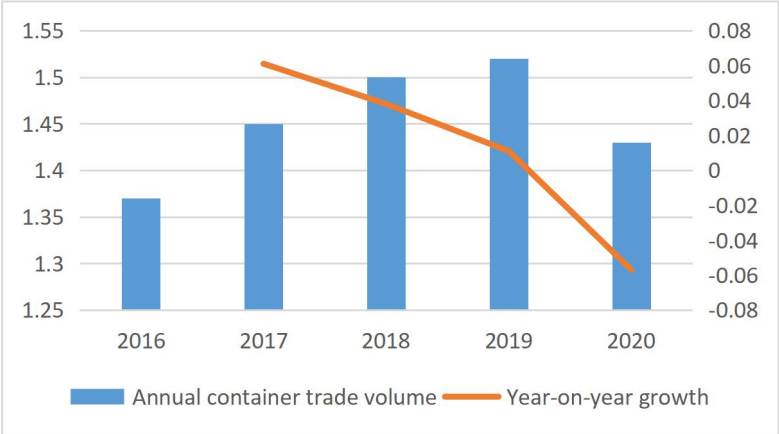

Figure 1-1 Changes of global container trade from 2016 to 2020

Data source: UNTAD

1.2 Purpose of the study

At present, maritime transportation accounts for more than two thirds of the total international trade. Container liner transportation is an important means of cargo transportation by sea. Container transportation improves the efficiency of port loading and unloading, reduces the damage, difference and loss of goods, promotes the standardization of the packaging of goods transportation and facilitates door-to-door transportation. Under the background of economic globalization, container transportation is related to the profits of enterprises and the economic development of the country and region. Therefore, it is of great significance for domestic enterprises to study the dynamic of container liner transportation alliance in this environment.

1.3 Research content

This article is divided into six parts to study the optimization design of container liner routes under the shipping alliance. The research contents of each part are as follows:

Chapter 1: Introduction. This chapter introduces the research background and purpose of this article, and introduces the research content and research methods of this article.

Chapter 2: Analysis of the development of shipping alliance. This chapter starts from three parts: the concept, history and status quo of the shipping alliance, and the cooperation model of the shipping alliance, and elaborates on the contents related to the new and old patterns of the shipping alliance, and pave the way for the following analysis of the changes before and after joining the shipping alliance.

Chapter 3: Mainly analyzes the market share and market concentration changes of the shipping alliance in the development process, demonstrates the benefits of the shipping alliance, and pave the way for the following together with the second chapter.

Chapter 4: Using swot analysis to make relevant predictions on the development trend of Chinese’ s shipping companies.

Chapter 5: Summary and Outlook. Summarize and put forward research prospects

1.4 Research method

This article first starts with the development history and status quo of shipping alliances, analyzes the causes of shipping alliances and changes in the evolution of the shipping alliances, and then analyzes the changes in the size and market share of shipping alliances before and after their formation, as well as the global shipping industry. Changes in the structure, including changes in the ranking of world shipping companies and changes in the constituent companies of various shipping alliances are analyzed. Then this article will take COSCO SHIPPING as an example to analyze the changes in the market share of COSCO SHIPPING before and after joining the shipping alliance and the changes in shipping routes, such as changes in the ports of call and changes in the number of shipping routes. Finally, we will do a swot analysis of the survival and development of Chinese shipping companies represented by COSCO SHIPPING in the shipping alliance environment, analyze the advantages, disadvantages, opportunities and challenges they will encounter, and make suggestions on the future development trends of Chinese’s shipping companies. Forecasts and opinions.

1.5 Recent research on the Shipping alliance

Cooperation and alliance are common phenomena among container liner carriers. Agarwal and Ergun point out that the influencing factors that drive carriers to adopt the mode of cooperation with competitors outside the traditional business model are as follows: A. liner transportation is a capital intensive industry; b. Large container ships have economies of scale effect, but large container ships need more time to gather at the port, which leads to the decrease of service frequency; c. Alliance members can expand new markets and expand their service scope. There are many other factors affecting the alliance, such as national strategy, government policy and culture, which affect the success of the alliance,

Some scholars have done some quantitative research on the basis of shipping alliance theory. Quantitative research is divided into two research directions: one is optimization and research based on game theory. Fu Jia uses game theory to analyze the influencing factors and benefit distribution mechanism of container transportation enterprise alliance, which has an important influence on the study of alliance causes and benefit distribution. Another research direction is to optimize and study the related problems of shipping alliance by using operational research model. Wu Wenyi uses the system analysis method to abstract container transportation as graph theory network, establishes the mixed integer programming model of container transportation route selection under the optimal situation of the system, and solves the model with LINGO software.

Chapter 2 History of shipping alliance

This chapter will discuss the development of shipping alliance from three aspects: the concept, history and current situation, and cooperation mode. To provides the background and basis for the later analysis of the development opportunities of China's shipping enterprises in this environment.

2.1 The concept of shipping alliance

Shipping alliance refers to various alliances formed by liner companies in the field of transportation services, such as complementary routes and ports, coordination of shipping schedule, mutual rental of shipping space, mutual sharing of information in the field of transportation auxiliary services, Co Construction of common terminals and yards, and sharing of inland logistics system. Liner companies realize global joint operation, which not only improves the service quality, but also achieves great economic benefits.

2.2 History and current situation of shipping alliance

With the development of container transportation, liner shipping association is going to disintegrate. Since the 1990s, the contradiction between supply and demand of liner shipping industry has become increasingly acute, and the shipping market has entered an unprecedented difficult period. Although individual shipping companies have made efforts to increase investment and cooperation in route allocation, tariff policy, service level and other aspects, the practice shows that a single shipping company is too weak to run the strategy of "low transportation cost, high service quality".

Therefore, the world's major liner companies began a large-scale joint venture strategy. The earliest shipping alliance was established in 1870's by seven liner companies in the form of liner association and operated on the London- Calcutta route. The peak period of liner associations was in the 1980s. According to statistics, in 1974, the peak year of liner associations, there were about 375 liner associations in the world. The association controls one third of the world's liner routes, and about 4363 shipping companies join the association. However, due to the maturity of container transportation technology, the trend of economic globalization and integration, and the change of global maritime transport rules, the liner Association began to decline, and gradually withdrew from the historical stage. The liner alliance has replaced the liner Association as the main form of cooperation in the shipping market. In September 1994, five shipping companies, APL, P & O

Nedlloyd, OOCL, MOL and MISC, established the first shipping alliance called "global alliance"; Since then, there has been a "2M" alliance composed of Maersk and the Mediterranean. From then on, shipping alliance has gradually become the normal form of shipping market. At present, with the completion of the merger and reorganization of alliances in recent years, the original four major alliances have become the three major alliances. The specific alliance pattern changes are shown in table 2-2 and table2-3.

Table 2-1 The difference between liner Association and shipping alliance

Organizational form	Generation time	Main cooperation contents	Organizational effectiveness	Constraint object
Liner Association (Conference)	Since 1875	Formulate unified freight rate, transport capacity and jointly arrange operation	Mandatory engagements	Member companies
Shipping alliance	Since 1996	All kinds of technical, operational or commercial agreements for the reasonable operation of container transportation, such as space leasing, joint ship dispatch, terminal operation, inland transportation, equipment sharing, etc	Engagement	Carriers who operating global routes

Table 2-2 Original shipping alliance pattern in the past

Container liner company	Alliance / ship sharing agreement（VSAs）	
APM-Maersk	P3 is not detected	2M
Mediterranean Shg Co		
CMA CGM		O3
China Shipping	/	
UASC		
NYK Line	Great Alliance	G6
OOCL		
Hapag-Lloyd		
A.P.L	New World Alliance	
MOL		
Hyundai M.M.		
COSCO transportation	CKYH	CKYHE
K Line		
Yang Ming Marine Transport Corp		
H.M.M		
Evergreen Liner		

Table 2-3 Existing alliance structure

Container liner company	Alliance sharing agreement（VSAS）
APM-Maersk	2M
Mediterranean Shg Co	
COSCO Group	Ocean Alliance
CMA CGM Group	
Evergreen Liner	
Yang Ming Marine Transport Corp	THE Alliance
Hapag-Lloyd	
ONE（ocean network express）	

Data source: Alphaliner

2.3 Cooperation form of shipping alliance

In liner transportation, it has become normal for shipping companies to form shipping alliance. The cooperation form of shipping alliance is constantly innovating, and the depth and breadth of the alliance are constantly deepening. The cooperation mode of shipping alliance has also expanded from the initial space rental, space exchange and joint ship dispatch to network reorganization and multimodal transport cooperation. However, space rental, space exchange and joint ship dispatch are still the main forms of cooperation.

(1) Cabin lease

Cabin lease means that on a certain route, the shipping company does not operate its own ships, but pays rent to hire other shipping companies in the alliance for the space of the operating vessels on the route, so that their own goods can be transported on the route . The advantage of space leasing is that the shipping company does not need to expand the route to transport goods on the route so as to expand its route network. The operating cost and capital cost of dispatching ships on this route are saved.

(2) Interchange of cabins

Interchange of cabins means that multiple partners exchange slots on multiple routes to achieve the goal of maximum utilization. As the most effective type of cooperation between shipping companies, swapping spaces is of great significance for both parties to increase the full load rate. The implementation of swapping spaces can avoid the phenomenon of "going away with a full load and returning without a load".

The interchange of cabins does not change the operating conditions of the original routes. The members of the alliance still operate the free routes independently, only renting

part of each other's slots. This model not only maintains the independence of the shipping company's operations, but also expands the coverage of the route and increases the frequency of dispatch under the condition that the investment of the shipping company remains basically unchanged, thereby improving the service level and strengthening the competitiveness of the shipping company.

(3) Joint Ship Dispatch

Joint Ship Dispatch means that alliance members sign an agreement for joint operation of ships on one or more routes. The agreement stipulates the proportion of each party to the agreement to invest in the ship, the proportion of space allocation, the port of call, the schedule and so on. All parties participating in the joint dispatch agreement are jointly responsible for route operations and ship scheduling, but are solely responsible for space marketing. This model allows the parties to the agreement to enter the market with a relatively small capital cost on the basis of ensuring the frequency of dispatch, reducing the investment risks that may be brought about.

The three forms complement each other and jointly improve the working efficiency and service level of shipping companies. Cabin leases can greatly reduce shipping costs and operating costs; Interchange of cabins is the most basic cooperation in the shipping alliance, which can reduce the expenses required to develop routes. Yes, shipping companies can better expand their business scope; Joint Ship Dispatch can This allows shipping companies to enter the market at a lower cost, reducing investment risks.

In summary, as the shipping market continues to be sluggish, it is imperative for the alliance members to have deeper cooperation. Further cooperation models such as re-planning of the route network, restructuring of transportation capacity, and land and rail transport cooperation will solve the operating difficulties of liner companies. Provide a great help.

2.4 Chapter summary

This chapter mainly analyzes the history and current situation of shipping alliances, and concludes that shipping alliances are the future development trend of the shipping industry. It is necessary to conduct research on shipping alliances. Then, it analyzes the cooperation mode of shipping alliances, of which space leasing is the most basic cooperation mode. , Slot swap is developed on the basis of space leasing. Compared with space leasing, co-shipment is a more

advanced and in-depth cooperation mode among alliance members. It provides a theoretical basis for the subsequent research.

Chapter3 Development of Shipping Alliance

The container shipping market is an important part of the entire shipping market. Due to its extremely high fixed costs and the existence of entry and exit barriers, it has a monopolistic nature to a certain extent, resulting in a limited number of liner companies in the international container shipping market and large-scale liners. The situation where the company coexists with many small liner companies. With the continuous evolution and reorganization of shipping alliances in the shipping market, the continuous mergers, mergers, and reorganizations of shipping companies have accelerated the evolution of the container shipping market structure to a monopoly market structure, forming a gap between a perfectly competitive market and a complete monopoly. A market with a certain degree of monopoly between markets.

3.1 Analysis of Market share

According to the statistics of Alphaliner in 2021, the top three shipping companies with market share are Maersk (16.8%), Miditerranean Shg Co (16.2%), and CMA CGM Group (12.4%). According to statistics, 2M's alliance market share has reached 33%, ranking first in the world, followed by ocean alliance, which occupies 30.1% of the market, and THE alliance, which ranks third, with 17%. The maritime market.

Through the analysis of the market capacity share of the world’s top 20 liner companies, it can be found that the current shipping market’s capacity is increasingly concentrated in the top 20 liner companies. Many small liner companies have too little market share, and some lack sufficient Of capital to enter the liner shipping market with higher barriers. Due to the imbalance between supply and demand in the liner shipping market, competition among container liner companies has become increasingly fierce. In order to maintain market share, larger liner companies will not hesitate to invest a large amount of capital, even if they lose money, to maintain their share of shipping capacity on the route, but smaller scales The liner company did not have enough capital to fight for market share in this "market share defense war", and was unable to improve the company’s growing operating losses. It could only declare bankruptcy or be acquired by a large company, and its market share would soon be It was divided up by other large-scale liner companies in the market: the market's capacity was becoming more and more concentrated, and there was a phenomenon of polarization.

From table 3-1, we can see that the number of 2M alliance members is 2, the number of Ocean Alliance members is 4, and the number of The Alliance members is 3. The greater the number of alliance members, the more complicated and difficult the alliance management is. Therefore, from the alliance management From a perspective, it is clear that the 2M alliance is better than the other two alliances. Moreover, the above table can also calculate the market shares occupied by 2M, Ocean Alliance, and The Alliance respectively, as shown in Figure 3-1 and Figure 3-2.

Table 3-1 Capacity and market share of the three major shipping alliances

Alliance	Total Transport capacity/TEU	Market share
2M	8,143,788	33%
Ocean Alliance	7,376,831	30.1%
THE Alliance	3,989,753	16.3%
Total	19,510,372	79.4%

Data source: Alphaliner 2021

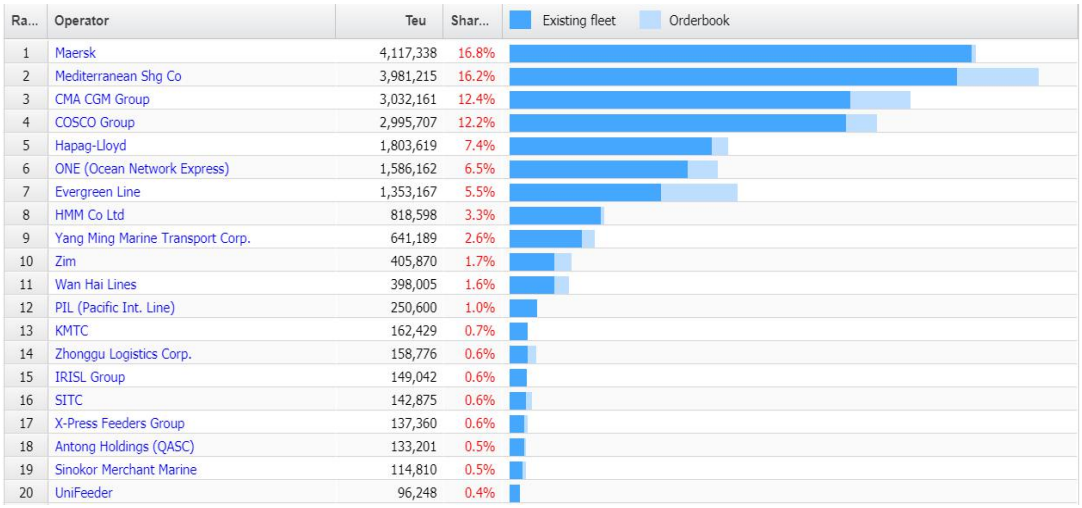

Figure 3-1 Capacity and market share of the world's top 20 shipping companies in 2021

Data source: Alphaliner2021

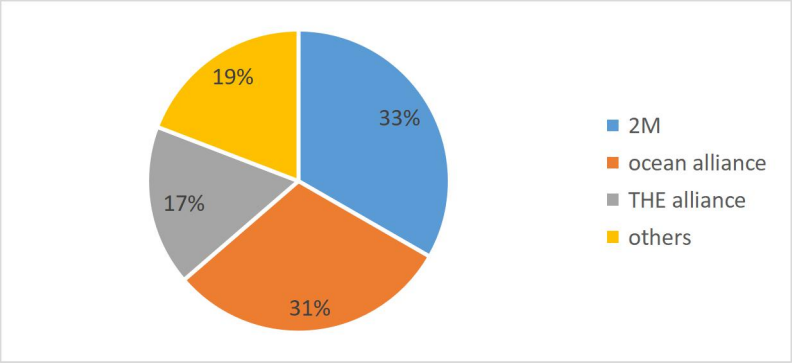

Figure 3-2 Market share of the three major shipping alliances in 2021

3.2 Changes in market concentration

3.2.1 Market concentration of the three major shipping alliances

It can be seen from Table 3-1 that the market share of the three major shipping alliances shows that the current world shipping market has formed a situation where the three major alliances are contending. The total market share of the 2M alliance ranks first, reaching 33.6%. The three major alliances are in the capacity. The market share is as high as 78.9%, and the total capacity of liner companies that have not joined the alliance accounts for only 20% of the global container shipping market capacity. In the calculation and analysis of the data, the relative concentration index, the Hirschman-Hefelder Index (HHI Index), is used to calculate the liner companies that have not joined the alliance as a whole.

$$HHI = \sum_{i=1}^{N}(X_i/X)^2 = \sum_{i=1}^{N} S_i^2$$

Where X is the total market size, Xi is the market size of the i company, Si=Xi/X is the market share of the i-th company, and n is the number of companies in the industry. Considering the three major shipping alliances as a whole, calculate the concentration of the liner market in the context of shipping alliances, and calculate the HHI value to be 0.6241. From the perspective of liner companies, the HHI value calculated using the data of the world's top 20 liner companies 0.4528. According to the definition of HHI, the higher the HHI value, the higher the market concentration. After comparing the two calculated values, it is found that the market concentration analysis of the container liner market from the perspective of the shipping alliance shows that the calculated HHI value is

significantly higher Directly substitute the liner company's capacity into the calculated HHI value. This shows that the emergence of shipping alliances has indeed increased the concentration of the container liner shipping market.

3.2.2 Changes in the market concentration of the world's top 20 liner companies under the shipping alliance environment

Select the industry concentration index (Cn) to measure the concentration of the liner market, select the transportation capacity data of the world's top 20 container liner companies in 2011, 2012, 2016, and 2020, and calculate the industry concentration index values in different years. According to the industry concentration formula, when the market share of the industry is known, the calculation formula is:

$$CR_n = \sum_{i=1}^{n} S_i$$

Among them: Si is the market share of the i-th company, and n is the total number of companies in this industry. Usually n=4 or n=8, at this time, the industry concentration degree respectively represents the concentration degree of the top 4 or top 8 enterprises in the industry with the largest scale. The results are shown in Table 3-2.

Table 3-2 Absolute market concentration index of the world's top 20 container liner companies

Concentration index	2011	2012	2016	2020
C4	40.84	36.96	47.28	57.06
C8	55.52	47.01	57.96	79.05

From Table 3-2, it can be found that the concentration index of 4 manufacturers (C4) and the concentration index of 8 manufacturers (C8) in the international container liner shipping market are increasing at a certain speed. In other words, the market concentration of the container liner shipping market is slowly increasing, and larger liner companies are constantly absorbing the capacity of smaller liner companies. The C4 of the international container liner shipping market dropped from 40.84% in 2011 to 36.96% in 2012. There was a short-term decline in market concentration. Subsequently, C4 increased to 42.28% in 2016, an increase of 5.32 percentage points in 4 years; Continue to increase to 57.06%, C4 increased by 14.78 percentage points in the four years from 2016 to 2020, which is more than twice the increase in the four years from 2012 to 2016. Note: In 2016, the bankruptcy

of Hanjin Shipping, the merger and reorganization of COSCO and China Shipping, and the acquisition of Hamburg South America by Hapag-Lloyd. These mergers and acquisitions in the shipping industry have greatly increased the concentration of the container liner shipping market, and the market capacity has further rapidly increased to a larger scale.

In addition, compared with the increase in concentration in 2011-2016, the concentration in the container liner shipping market in 2016-2020 will increase at a rapid rate. From 2011 to 2012, C8 decreased by 8 percentage points, from 2012 to 2016 it increased by 10.9 percentage points, and from 2016 to 2020 it increased by 21 percentage points. It can be seen that the concentration of the container liner transportation market is increasing, and the growth rate of the international container liner transportation market concentration is also accelerating. Pass the calculated concentration value through the Bain Industrial Concentration Type Table1 According to the query, based on the C4 of 40.84% .In 2011, the international container liner transportation market has entered the oligopoly type IV, and based on the C4 of 57.06% in 2020, the international container liner transportation market has entered the oligopoly type III. This shows that the current world liner shipping market has gradually developed from an oligopolistic IV market structure to an oligopolistic III monopoly market structure from 2011 to 2020, and the market concentration is increasing. In fact, in the past ten years, the international container liner transportation market has been very competitive. As the trend of large-scale ships has become more and more intense, various liner companies are more inclined to order large ships to reduce single container costs and achieve economies of scale, making the liner shipping market Capacity has increased rapidly. Due to the impact of the global financial crisis in 2008, the demand for global maritime trade has decreased. For the container liner shipping market, there has been a serious oversupply of capacity. Therefore, liner companies are facing a very severe test. Many liner companies went bankrupt during the crisis. The market capacity of smaller liner companies is continuously being annexed by larger liner companies, and the market concentration continues to increase.

[1] According to the classification standards of the American economist Bain and the Japanese Ministry of International Trade and Industry on industrial concentration, the industrial market structure is roughly divided into two types: oligopolistic (CR8 ≥ 40) and competitive (CR8 <40%). Among them, oligopoly is subdivided into extremely high oligopoly (CR8 ≥ 70%) and low concentration oligopoly (40% ≤ CR8<70%); competitive type is subdivided into low concentration competition (20% ≤ CR8<40) %) and decentralized competition (CR8<20%).

Table 3-3 Bain's classification of market structure

market concentration / structure	CR4(%)	CR8(%)
Oligopoly Ⅰ	CR4≥85	
Oligopoly Ⅱ	75≤CR4<85	CR8≥85
Oligopoly Ⅲ	50≤CR4<75	75≤CR8<85
Oligopoly Ⅳ	35≤CR4<50	45≤CR8<75
Oligopoly Ⅴ	30≤CR4<35	40≤CR8<45
Competitive	CR4<30	CR8<40

3.3 Changes in route capacity deployment under the shipping alliance environment (take COSCO as an example)

On February 18, 2016, China COSCO Shipping Group (hereinafter referred to as COSCO SHIPPING), which was merged and established by COSCO China Shipping, was established in Shanghai. Before the merger, COSCO was in the CKYHE alliance, and China Shipping was in the O3 alliance. After the merger, in accordance with regulatory requirements, a company is not allowed to cross two alliances for a long time. In addition, the global shipping market is now at a low level in the past few decades. From a competitive perspective, joining the alliance is conducive to the healthy development of the company, and the alliance can be adopted. To improve their services and reduce costs. Therefore, China Shipping has joined the Ocean Alliance. The members of the Ocean Alliance include COSCO Shipping, CMA CGM, Evergreen Shipping and Orient Overseas. Among them, the container capacity of CMA CGM, COSCO Shipping, Evergreen Shipping and Orient Overseas accounted for 11.0%, 8.3%, 4.9% and 3.3% of the global container capacity respectively. These four shipping companies are all in the second gradient of container liner transportation, and there is not much difference in capacity. In 2018, the acquisition of OOCL by COSCO ended perfectly. After the completion of the acquisition, OOCL will maintain its original independent brand and independent listing. OOCL will act as an independent entity under the COSCO SHIPPING Group. At the end of 2018 after the completion of the acquisition, according to the Alphaliner capacity ranking, after the merger of COSCO SHIPPING and OOCL, the total capacity will reach 12.4%, exceeding 11.8% of CMA CGM (CMA CGM), making it the third largest shipping

company in the world. It can be seen from Figure 5 that although the market share of the reorganized COSCO group ranks fourth, it is only 0.2% away from the third-ranked CMA CGM.

3.3.1 Market share comparison between Ocean Alliance and other alliances

As of June 9, 2021, the number of ships operating on global liner routes is 6,223, with a total load of 24,705,035 TEU and a total deadweight of 297,022,295 tons. The world's top 20 container liner shipping companies and their container capacity are shown in Figure 3-4. The top three of the top 20 global liner companies are APM-Maersk, Mediterranean Shg Co and CMA CGM Group. The total number of containers is 7,445,776 TEU, and the total capacity accounts for approximately 33% of the global capacity. The total number of containers of the top ten liner companies is 20,738,509 TEU, accounting for about 83.9% of the global capacity, and the total number of containers of the top 20 liner companies is 22,483,456 TEU, accounting for about 91 of the total global capacity. %. Therefore, it can be seen that the global container shipping industry is a highly concentrated industry, and the number of containers and ships owned by most container liner companies is far from that of Maersk Line, Mediterranean Shipping and CMA CGM.

3.3.2 COSCO SHIPPING Alliance model selection

COSCO SHIPPING and the other three alliance partners mainly cooperate in the following ways:

(1) Space rental: 4 shipping companies lease their space each other and pay for space rental in accordance with the alliance agreement.

(2) Interchange of cabins : on the basis of maintaining their original routes, the four shipping companies will swap slots in accordance with the alliance agreement.

(3) Joint dispatch of ships: On multiple routes, four shipping companies have signed joint dispatch operations agreements. The agreement stipulates the schedule of the route, the port of call, and the number of ships dispatched by each member of the route. When dispatching ships together, all parties of the alliance jointly operate routes, but all parties still carry out route marketing independently.

(4) Alliance members share the port yard: According to the alliance agreement, 4 shipping companies can share the port yard as agreed, reducing the port yard use cost and improving the efficiency of the yard operation.

(5) Increase in ports of call: 4 shipping companies form a new route network, and each alliance member has expanded its number of ports of call with the help of the partner's route network.

In general, the Ocean Alliance complements the advantages of different members to achieve the goal of airline alliance portfolio and service integration. However, the alliance organization does not set prices. Each member is independently responsible for product prices and route marketing. The alliance members are in a relationship of cooperation and competition.

3.3.3 COSCO SHIPPING line products after join the alliance

The agreement signed by the Ocean Alliance stipulates that after the alliance cooperation starts, a total of about 333 container ships will be invested, with a total capacity of 4.1 million TEUs, and the alliance's operating route network includes 41 routes. Among them, there are 20 Pacific routes: including 9 Southwestern US routes, 4 Northwest US routes, 7 US East/Gulf routes, 6 Asia-Northwest Europe routes, 5 Asia-Mediterranean routes, 3 Atlantic routes, and Far East -5 Persian Gulf routes and 2 Far East-Red Sea routes. The number of ships and capacity invested by Ocean Alliance on various regional routes is shown in Figure 3-3:

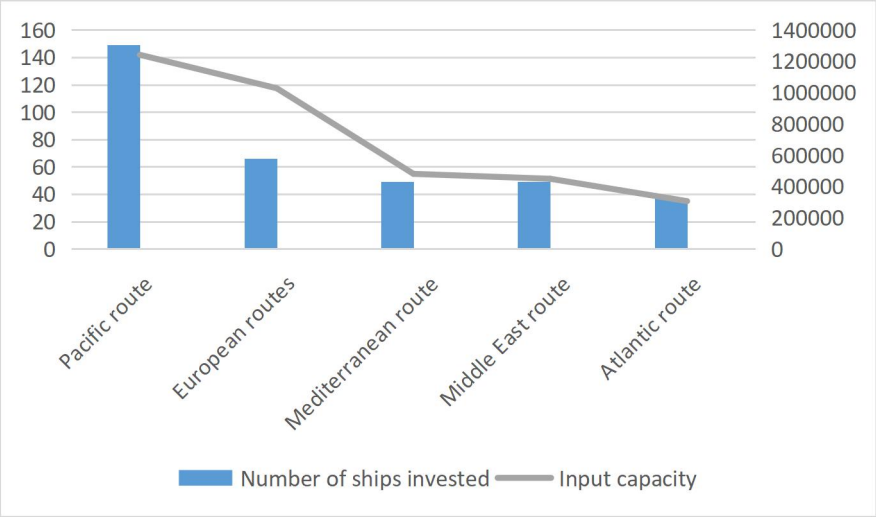

Figure 3-3 The number and capacity of ships invested by Ocean Alliance in various routes

Data Source: Alphaliner 2021

According to the 2021 ocean alliance route data released by COSCO SHIPPING Lines, it can be seen that the route products of the Ocean Alliance in 2021 will have a total of 40 route services (including 1 trans-Atlantic route), which are: 7 routes from Asia to Northwest Europe and 4 routes from Asia. Round-trip Mediterranean routes, 20 trans-Pacific routes, including 13 western US routes, 7 US East and US Gulf routes, 3 transatlantic routes, 4 Far East routes to and from the Persian Gulf, 2 Far East routes to and from the Red Sea, and 7 Far East routes Routes to and from Northwest Europe.

(1) Pacific route

In 2021, the COSCO Shipping Lines Pacific route includes 20 sets of routes (including three service routes outside the Ocean Alliance), and serves 161 port pairs. The Pacific route includes three routes from the Far East to the Southwest, the Far East to the Northwest, and the Far East to the East of the United States. There are 13 sets of Far East-Southwest US routes, providing 61 port-pair services; 4 sets of Far East-Northwest US routes, providing 22 port-pair services; Far East-US East routes have 3 sets, providing 78 port-pair services. See the appendix for the specific route path.

The southwest route of the United States fully covers the Far East, providing superior services in North China, East China, South China, Taiwan, South Korea, and major countries in Southeast Asia and major ports in the Southwest United States. At major ports in South China, it provides 5 services per week; at major ports in East and North China, it provides 4 services per week; at major ports in Southeast Asia, it provides 4 services per week. The western United States has comprehensive coverage, with direct services to Long Beach, Los Angeles, Oakland, Tacoma and Port of Prince. The Northwest route covers China, Japan, South Korea and other major ports, and has direct services to Prince Port, Vancouver, Tacoma and Seattle in the northwest region of North America. The four routes serve different destinations at the first port. MPNW US West first connects to Seattle, CPNW first linked to Prince Port, EPNW first linked to Tacoma and OPNW linked first to Vancouver. Each has its own focused destination port order and a comprehensive Far East port, which makes the product advantages obvious and efficient and orderly operations. The direct service of the US East-US Gulf route covers major ports in China, South Korea and Southeast Asia, and the US East and US Gulf regions have comprehensive coverage, including 5 sets of US East routes and 2 sets of US Gulf routes. Among them, the East America route fully covers East China, South China, Taiwan, and major ports in Southeast

Asia to New York, Savannah and other express services. They are: 1 set of East China to New York, 1 set of South China to New York; 1 set of East China to Savannah, 1 set of South China to Savannah; 1 set of express service from Southeast Asia to New York. The two groups of US Gulf routes have their own emphasis on East China and South China, providing complementary export routes between East China and South China.

Table 3-4 Comparison before and after COSCO Shipping joined the alliance Pacific route

	Before joining ocean Alliance	After joining ocean Alliance
Pacific routes	**7**	**20**
number of call ports	23	46

Data source:Alphaliner

The Pacific route has always accounted for an important proportion of the shipping company's route setting, and plays a decisive role in the company's overall profitability. Before the company joined the Ocean Alliance, there were few Pacific routes and the coverage of ports was not wide enough. After joining the alliance, the service range of the route has been broadened.

(2) European Routes

Ocean Alliance provides 7 sets of direct routes between Northwest Europe and the Far East to the Netherlands, 5 to Germany, 5 to Belgium, and 5 to the United Kingdom every week. It is currently the most frequent and most widely covered round-trip service from the Far East in the market. Route products for Northwest Europe. Relying on the superior resources of Zeebrugge, Rotterdam, Gdansk and other transit ports and self-owned branch line network services, provide better network coverage, and provide customers with higher frequency, faster delivery and more stable services Diversified choices, providing efficient and convenient, comprehensive layout to Spain, Bilbao, Ireland, Baltic region Sweden, Denmark, Poland, Lithuania and other countries, as well as Finland, Russia and other countries. See the appendix for the specific route path.

Table 3-5 Comparison table before and after COSCO SHIPPING European Route

	Before joining ocean Alliance	After joining ocean Alliance
European routes	**2**	**7**
number of call ports	51	172

Data source:Alphaliner

(3) Mediterranean route

The Ocean Alliance provides 4 sets of direct routes from the Far East to the Mediterranean: 2 sets of special routes from the West to Spain, Italy, and southern France with a competitive delivery time, 1 set of special Adriatic special routes and the only direct route to the Black Sea in the market. In addition, differentiated coverage continues to maintain characteristic services. At the same time, through the supporting layout of 12 regional routes calling at the port of Piraeus, we will further improve our branch line network service coverage in the Mediterranean region and the China-Europe Sea Express line business, and continue to provide efficient, convenient, and multi-frequency north to the Czech Republic. Developed networks extending inland from Russia, Hungary, etc. to Egypt in the south, Spain in the west, and Turkey in the east, and will be added to Israel and North Africa regional special lines.

Table 3-6 Comparison table before and after COSCO SHIPPING join the alliance

Mediterranean Route

	Before joining ocean Alliance	After joining ocean Alliance
Mediterranean routes	**2**	**4**
number of call ports	64	224

Data source:Alphaliner

(4) Middle East-Red Sea Route

Ocean Alliance is the only alliance in the market that provides 4 sets of routes, with leading ship types, superior products and the widest coverage. In terms of ship types, COSCO Shipping Lines has invested 20,000 TEU flagship ship types on the MEX route to provide a stable capacity guarantee; in terms of service frequency, the route provides 4 classes of East China and South China services, 3 classes of North China services, and 4 classes of Jebel Ali services per week at the port of destination. 3 Dammam service; Sohar Express service will be added in 2021, and the delivery time from East China to Sohar is only 18 days. At the same time, relying on the Abu Dhabi transit hub, the route covers all-round Middle Eastern countries such as Kuwait, Iraq, Bahrain and Oman. The Red Sea route calls major ports in China and Southeast Asia, and has a direct route from the Far East to major ports in the Red Sea. It can provide direct services to Jeddah, Sokana, Aqaba, and Djibouti, continuously improving customer experience. As a major transit port, Jeddah

provides network coverage to major ports in the Red Sea region, covering areas such as Aden and Hudaydah in Yemen.

Table 3-7 Comparison table before and after COSCO SHIPPING join the alliance Middle East-Red Sea Route

	Before joining ocean Alliance	After joining ocean Alliance
Middle East-Red Sea routes	/	**2**
number of call ports	/	18

Data source:Alphaliner

(5) Atlantic route

The routes call at major ports in Europe and the United States, providing extensive coverage and differentiated route services, with direct services from Europe to New York, Savannah, Charleston, Houston and Miami. Within the Ocean Alliance, COSCO SHIPPING Atlantic Line provides 71 port-pair services, as shown in the figure below:

Table 3-7 Comparison table before and after COSCO SHIPPING join the alliance Atlantic routes

	Before joining ocean Alliance	After joining ocean Alliance
Atlantic routes	/	**3**
number of call ports	/	24

Data source:Alphaliner

3.4 Chapter summary

Starting from actual cases, this chapter compares the market share of COSCO Shipping Lines's participation in the Ocean Alliance alliance with other alliances, and analyzes the strategic implementation of the COSCO SHIPPING alliance and alliance route products. The analysis shows that COSCO Shipping Lines has greatly expanded its business scope after joining the ocean alliance. , The number of routes and the number of ports have nearly doubled. It can be seen that the shipping alliance is the only way for the

development of the shipping industry. Like other shipping companies, COSCO shipping lines also put most of its shipping capacity on Pacific routes to participate in market competition. After joining the alliance, the service range of the routes has been broadened and the development speed of the enterprise has also been greatly improved.

Chapter 4 Research on the Development of Chinese's Shipping Enterprises Based on Shipping Alliance Environment

With the form of shipping alliances has become the mainstream of the world shipping industry, industry concentration has reached an unprecedented scale. The higher the industry concentration, the higher the industry barriers. In this environment, small shipping companies seem to be fighting alone. Therefore, if you want to survive, you must join the alliance. As a representative of COSCO Shipping that has joined the Ocean Shipping Alliance, what are the internal and external influencing factors of Chinese shipping companies in the shipping alliance environment, what development opportunities or challenges Chinese shipping companies face in this environment, and what development trends will there be in the future, this chapter will use SWOT Analyze to explain.

4.1 SWOT analysis

4.1.1 Strength

(1) Branded advantages

As the world's third-ranked shipping company, COSCO Shipping Lines itself has a greater advantage in popularity. Moreover, its business covers almost all important domestic ports, covering a large number of business types, and has long been well-known in terms of brand reputation. In addition, the display of patriotism in the domestic social environment has also prompted COSCO Shipping Lines, a state-owned company, to ensure that it maintains a relatively large advantage in the competition between domestic and other multinational companies, which is also behind its brand. The convenience brought by culture. Based on this, it can be found that due to the widespread reputation of COSCO Shipping Lines, its brand has become an important advantage in its market operations. After joining the ocean alliance, they also actively used the advantageous routes of other members in the alliance to develop their own business, and their influence in the world has increased much more than before the alliance. And relying on the brand effect, you can fully enjoy the patriotic dividends of the Chinese people when you are fighting for market share.

(2) Domestic and foreign trade on the same ship

The same ship transportation of domestic and foreign trade refers to a way for an enterprise to effectively use the turnover of ships in the course of business operations to

expand the scale of production with a smaller number of ships. COSCO Shipping Lines has relatively prominent advantages at this level. Its ability to adjust ship positions and container turnover has reached the international advanced level, which can ensure that it can effectively control costs in a competitive environment. At the same time, the same ship transportation of domestic and foreign trade also means the realization of efficiency and the ability to complete terminal loading and unloading faster.

(3) Human resource

As the number one shipping and transportation company in China, COSCO Shipping Lines has no doubt about its talent acquisition capabilities, and its talent base is much higher than similar domestic companies. More importantly, the business scale of COSCO Shipping Lines enables it to have a relatively significant advantage in the competitiveness of the talent market, which can ensure its own sound development. From the perspective of internal human resource management, COSCO Shipping Lines has relatively ideal human system coordination, and has established good internal competitive advantages, such as "professional competition", and provides space for outstanding employees to develop. Therefore, on this basis, COSCO Shipping Lines has realized the sense of belonging and development of its employees, and has also constituted the embodiment of the value of its own employees in its core competitiveness.

(4) International advantages

From the perspective of international economics and trade, the strength of the economy has led to an increase in the volume of international trade. In international trade, the "China factor" is the biggest bright spot. In addition, China's share of world trade has risen sharply, and China's import and export trade is also showing a good growth trend, playing an important role in international and trade. In addition, China under the epidemic has become a green harbor for international trade. Good control has made China's trade orders soar in the past two years, and its competitiveness with other shipping companies or other shipping companies in the alliance has also increased.

4.1.2 Weakness

The imperfect port and customs clearance environment will become a major obstacle to COSCO SHIPPING’s operations. The current problems are mainly manifested in three aspects: First, the efficiency of checking and releasing empty boxes is low. Empty container inspection refers to the customs inspection of containers that have been emptied.

The problem with this inspection is that the process is too complicated and requires more procedures to complete. In fact, there is no empty container inspection. The cumbersome customs procedures will only delay a lot of time. This situation is bound to affect the efficiency of domestic and foreign trade on the same ship. Second, the supporting facilities of the port are not perfect. The construction of my Chinese's foreign trade ports was carried out after the reform and opening up. The real high-speed construction period began in the late 1990s, but other shipping companies or other members of the alliance that also participated in the competition started much earlier than COSCO SHIPPING. This problem has caused obvious problems in supporting functions for many emerging ports. Such functional problems will directly affect the business efficiency of COSCO Shipping Lines; third, the number of customs brokers is too small. COSCO SHIPPING Lines is a freight company, and the customs declaration work is mainly completed by the customs declaration company. Insufficient number of customs declaration companies will directly affect the efficiency of ship import and export ports. For example, in the newly-built Nansha Port Area of China, there is only one customs declaration company that meets the relevant qualifications.

4.1.3 Opportunities

Based on the analysis of the current international and domestic situations, the rapid development of the Belt and Road Initiative, the control progress of the new crown epidemic far exceeding other countries, and the complete planning of the collection and distribution transportation network have become major opportunities for COSCO Shipping Lines and Chinese's shipping industry. Since the reform and opening up, China has been gradually improving the construction of the transportation network, and the direction of the early efforts is to achieve the improvement of the main routes. During the period, although water transportation has received a certain amount of attention, there are obstacles due to the distribution of goods such as land and railway. Therefore, shipping did not have ideal space in the past development process. However, in recent years, the main transportation routes have been improved. In the process of gradually strengthening the overall transportation network planning, the low-cost transportation advantages of shipping can undoubtedly be more prominent. Under the influence of the new crown epidemic, the transportation of various countries is in a semi-paralysis or recovery stage. As the world leader in epidemic control, COSCO Shipping Lines can take this opportunity to preempt

shipping companies from other countries to annex small ships that have gone bankrupt due to the epidemic. The company's routes or businesses can seize the market and increase market share through faster recovery.

4.1.4 Threat

As the largest domestic shipping company, COSCO Shipping Lines will face threats not only from other domestic shipping companies, but also from complicated international situations and policy changes. For example, the IMO’s policy to limit sulfur emissions in 2020 will directly reduce 3.5% The sulphur content standard is reduced to 0.5%, which directly leads to all shipping companies in the world will usher in the ship reform. They must choose between installing desulfurization towers and repurchasing and transforming ships, which will be a huge expense. This has directly led to many ambitious shipping companies unable to afford this cost and withdraw from the market. Although COSCO Shipping Lines, as the world's top four large-scale, will not affect its operations, it will also pay a great price to comply with this regulation.

In addition, in recent years, operating costs have continued to increase, and market competition has intensified, forcing companies to maintain their current prices, otherwise it may lead to a gradual outflow of loyal users. In addition, the cost increase in the raw material market in recent years, such as the supply of energy and accessories, has also caused an increase in business operating costs. In this context, COSCO Shipping Lines will inevitably be affected by profit margins, and then reduce its own development efficiency. Therefore, in recent years, COSCO Shipping Lines has also adopted a variety of cost control methods. However, due to changes in the overall environment and the continuous increase of labor costs, COSCO Shipping’s cost control efforts have failed.

Finally, due to China’s rapid development in recent years, and with the gradual improvement of the construction of the One Belt One Road, China’s shipping industry has reached the highest rate in history. This industry has caused dissatisfaction and a sense of crisis in other countries. Trade sanctions on China's import and export and shipping industry have gradually increased, which is also a great threat that COSCO and even the entire Chinese shipping industry will encounter.

4.1.5 SWOT Strategic Portfolio Analysis

(1) SO strategy (growth type）

Taking advantage of the development opportunities of the general environment, effectively adjust and optimize the structure of the fleet, and promote the scale of transportation capacity.

Upgrade, in line with the development trend of the times. Deeply cultivate the country to vigorously promote the development opportunities of the Guangdong-Hong Kong-Macao Greater Bay and the "The Belt and Road Initiative", build ultra-large container ships of more than 20,000 TEU, and further explore the import and export trade markets of countries along the road; reasonable control through methods such as lease of space and sale of ships Operational risk, enhance profitability.

Second, effectively combine its own advantages to promote brand building, enhance market awareness, and strengthen marketing. As the largest shipping company in China and the fourth largest in the world, it has won multiple gold and silver awards for comprehensive services issued by the Shipowners Association, especially in the operation of ocean routes, and has won the favor and appreciation of many customers.

In addition, through the sales department linking with foreign agents, we will work together to vigorously develop the basic supply of direct customers.

(2) WO strategy (twisting type)

First, sum up the past development experience and effectively deal with the problems that may arise in the future market and avoid them in advance. Strengthen the understanding of customers, competitors and the market, avoid the unwarranted loss of customer base, and avoid blindly imitating the strategic decisions of other shipowners through in-depth research on the market, leading to production and operation risks.

Second, change the customs clearance environment at the port. With the maturity of Internet technology and AI technology, it is possible to simplify customs clearance procedures, implement paperless customs declarations, reverse low work efficiency and reduce costs.

Third, optimize routes and effectively open short routes. Accelerate the adjustment of loss-making U.S., Canada and European routes, and release the released capacity to markets with strong demand growth, such as Southeast Asia and the Middle East.

(3) ST strategy (diversification type)

First, strengthen foreign cooperation and implement the signing of major customers. The shipping industry is very competitive, and it is possible to increase any of its original advantages of ports and terminals for customers to choose from by cooperating with other shipowners to operate routes, such as the formation of the CKKY alliance. Focusing on signing major customers while taking into account the needs of individual customers can ensure the stability of the goods. So far, it has signed contracts with many customers, including the world's top ten NVOCC.

Second, promote strategic cooperation in related industries to enhance core competitiveness through joint operations.

(4) WT strategy (defensive type)

First, strengthen the strict management of production costs and save costs to the greatest extent. In the process of production and operation of enterprises, various expenses will be incurred. Under the premise that the market is in a long-term downturn, the control of operating costs is critical to the survival of the enterprise.

Second, innovate the business model and replace the traditional service model with differentiated services to achieve the control of operating costs. COSCO Shipping Container Lines has introduced a brand-new operation model to replace the traditional business model, using trailers to deliver door-to-door, sea-rail combined transportation, road-rail combined transportation and other transportation methods to replace the original simple marine transportation; in addition, By acquiring the management rights and warehouses of domestic and foreign terminals, COSCO Shipping has launched a brand-new supply chain model to enhance its market competitiveness.

From the above analysis of the four levels, combined with the SWOT matrix analysis method, we can get the content of Table 4-1.

Table 4-1 SWOT matrix strategy matching analysis

Internal factors / External factors	Strength	Weakness
	(1)Branded advantages (2) Domestic and foreign trade on the same ship (3) Human resource (4) International advantages	Imperfect port and customs clearance environment
Opportunity	SO strategy	WO strategy
1.Environmental development opportunities 2. Development opportunities based on advantages	1. Taking advantage of the development opportunity of the general environment, effectively adjust and optimize the structure of the fleet to promote the upgrade of the capacity scale, in line with the trend of the times; 2. Effectively combine its own advantages, promote brand building, strengthen marketing, and establish core competitiveness	1. Summarize the past development experience and effectively respond to the emergence of the market in the future Avoid the problem in advance; 2. Optimize the route and effectively open up the short-haul route; 3. Change the customs clearance environment at the port.
Treat	ST strategy	WT strategy
1. Increase in cost 2. Reduction of supply	1. Strengthen foreign cooperation and implement the signing of major customers; 2. Promote strategic cooperation in related industries to enhance core competitiveness through joint operations.	1. Strengthen the strict management of production costs and save costs to the greatest extent; 2. Innovate the business model and replace the traditional service model with differentiated services to achieve the control of operating costs.

4.2 Future development forecast

In the global economic and trade recession, the overall global container shipping volume will continue to decline in the future. The crisis is self-evident, the shipping industry is still unclear, and liner companies are forced to shelve part of the shipping capacity. According to statistics, there are 600,000 TEU container ships have been stranded and left idle, accounting for 1/20 of the world's total capacity. Therefore, seizing opportunities in the ever-changing situation and digging out favorable factors in adversity have become the top priority for shipping companies to survive in the environment.

The future development of the container shipping logistics industry will face the following five important trends. The first is the increase in LCL cargo. Secondly, especially in the context of the epidemic, the transportation volume of emergency, standby and timely cargo will also increase. Finally, the digital development of shipping logistics will inevitably accelerate further. Moreover, the transformation of low-sulfur fuels is also an important topic faced by all shipping companies. Finally, the Hong Kong Airlines Alliance is also a hot topic at the moment.

IMO2020 took effect last year, requiring carriers to use fuels with sulfur oxides less than 0.5%, such as very low sulfur fuel oil (VLSFO) and marine gas oil (MGO). In the first quarter of this year, the price of VLSFO caused by COVID-19 fell , Many ship operators switch to VLSFO, and some ship operators are also seeking to use liquefied natural gas (LNG) as an alternative.

In addition, digital transformation will become a key task of Chinese shipping company and the global shipping industry in the future. Catalyzed by the epidemic, COVID-19 has forced the supply chain to seek solutions in terms of safety and efficiency. With the entry into force of the new trade agreement, Aerospace is also moving from customs forms to bill of lading confirmation. The digitization of documents can save labor and time costs, and save costs while reducing risk spread. In 2021, in addition to the mature Maersk online booking platform, all major liner companies plan to launch such platforms to promote online booking. Small and medium liner companies in regional alliances can also keep up with this time through resource sharing. The transformation and upgrading of the industry.

Judging from the situation reflected in the Ningbo Export Container Freight Index, since the outbreak of the epidemic in 2020, North American routes have been the first to be

affected by insufficient capacity supply, and freight rates have continued to rise. Benefiting from the sharp increase in ocean freight, the profitability data of various liner companies in 2020 is very impressive, especially the three major shipping alliances with rich shipping resources. When the logistics nodes return to normal and the shipping market returns to rationality, small and medium-sized liner companies may be willing to form a regional alliance in the face of an oversupply of the shipping market to resist market downside risks and have a certain right to speak.

As the liner companies have tasted the benefits of the alliance, in addition to the traditional three major shipping alliances formed by nine liner companies, and the newly formed K-Alliance, in 2018, CMA CGM, COSCO Shipping Lines, and Dubai Global Ports , Hutchison Ports Group, CargoSmart and other maritime carriers and terminal operators with leading positions in the industry, established the first blockchain alliance in the shipping industry-Global Shipping Business Network (GSBN). In 2019, nine major liner companies including Maersk, Mediterranean Shipping and CMA CGM established the Digital Container Shipping Alliance (DCSA).

I personally believe that the alliance of the port and shipping industry will not stop, and the mode and content will continue to break through. In addition, the port alliance will also emerge as a choice in the market. In the face of the continuous upgrading of the shipping alliance, the port must respond in a timely manner. The establishment of an alliance is the best choice. At the same time, the port alliance is also the trend of the development of the port industry, because the alliance will bring greater benefits to the port.

First, the port alliance can reduce operational risks. Construction projects in the port sector require large investments, long periods, and relatively high risks. If the ports can invest together, it can reduce operating risks.

Second, strengthen the port's ability to resist external risks. Through the alliance with other ports in the region, the port can share resources and even core competitiveness, thereby enhancing the overall competitiveness of the port in the region in the market, and is in an advantageous position in negotiations with shipping companies and cargo owners.

Third, reduce costs and obtain higher economic benefits. With the improvement of port service level in a certain area, it can attract more ships to call, increase port utilization rate, and obtain higher economic benefits. At the same time, the increase in port utilization

can reduce the cost of loading and unloading, attract more shipping companies, and form a virtuous circle.

4.3 Chapter summary

This chapter uses SWOT analysis to focus on analyzing the advantages and disadvantages of Chinese's shipping companies represented by COSCO Shipping Lines, as well as the opportunities and threats they will encounter after joining the shipping alliance. After analysis, joining the shipping alliance has more advantages than disadvantages for Chinese shipping companies. The shipping alliance has played a huge role in reducing costs and enhancing competitiveness. Joining the shipping alliance can reduce risks when large or small and medium-sized shipping companies enter the market and lower the barriers to entry. If a balance can be found between opportunities and threats, the environment of the shipping alliance will be a major opportunity for Chinese's shipping companies to flourish. At the same time, this chapter also predicts the future world shipping environment. In the current shipping market, the competition between a single enterprise has gradually transformed into competition among several major shipping alliances. This market normality has also changed the port industry, which is closely related to the shipping industry, and the port alliance was born and is strengthening cooperation with the shipping alliance. And according to forecasts and the currently widely recognized shipping alliance model, the port alliance is likely to be more closely connected with the logistics alliance with the pace of digitalization in the future, or even transform into each other.

Chapter 5 Conclusion and Outlook

5.1 Conclusion

While the globalization of trade has brought opportunities to our enterprises, it has also brought fierce competition, especially after joining the WTO, the market competition faced by enterprises has become more severe. In this context, it has become the consensus of the current enterprise to strengthen the strategic management of the enterprise, enhance the core competitiveness of the enterprise, and promote the healthy and sustainable development of the enterprise. This dissertation analyzes the shipping capacity and market share of the shipping alliance, as well as the route changes of COSCO SHIPPING before and after joining the alliance, and makes an in-depth market analysis of COSCO Shipping, and predicts the future of the shipping alliance.

At present, domestic shipping companies represented by COSCO SHIPPING are relatively stable in terms of development, but there are still some problems. Only to strengthen the attention to these, ensure the implementation of corporate development strategies and follow-up safeguard measures, strictly control costs and expenditures, and continue to lead the market launch Differentiated services can promote the sustainable, healthy and long-term development of COSCO Shipping Container Lines.

In response to the continuing downturn in the shipping industry, global liner carriers have accelerated the pace of resource integration, and alliances, mergers, and reorganizations between enterprises have continued to occur, and the global container liner shipping market has undergone tremendous changes. Therefore, issues related to shipping alliances have become the focus and research focus of current scholars. The purpose of this article is to study how Chinese's shipping companies represented by COSCO SHIPPING can survive in the context of shipping alliances. This article mainly completed the following research work：

(1) This article systematically introduces the history and current situation of shipping alliances, and analyzes that shipping alliances are the inevitable process of the development of the shipping industry.

(2) Starting from actual cases, this article compares the market share of COSCO SHIPPING's participation in the Ocean Alliance alliance with other alliances, and analyzes

the COSCO SHIPPING alliance's route products and the differences before and after joining.

(3) A SWOT Analysis of the future development of Chinese's shipping companies was done, and the opportunities and challenges that Chinese's shipping companies will encounter, as well as their own advantages and disadvantages. It also predicted the future development trend of the shipping industry.

5.2 Outlook

The shipping alliance has undoubtedly played a huge role in reducing costs and enhancing competitiveness. In terms of reducing costs, through the interchange of slots, larger ships can be used and the utilization rate of marginal costs can be improved. It is also possible to carry out capital alliances to purchase larger ships, reduce the unit cost of capacity, and realize economies of scale. In addition, liner shipping is a capital-intensive industry, and the benefits of resource sharing are self-evident. On the one hand, through the alliance, the carrier can reduce the number of ships and reduce the capital risk caused by the purchase of ships. On the other hand, signing wharf and storage yard sharing agreements with other carriers can effectively recover part of the cost and avoid the loss of idle resources during the off-season of shipping.

In terms of enhancing competitiveness, it can obtain greater benefits by increasing the frequency of routes, expanding the scope of services, reducing industry barriers, and reducing freight rate fluctuations.

In short, the shipping alliance is the result of the reconfiguration of production factors in the shipping market. On the surface, it is the business cooperation between shipping companies; in fact, it is the redistribution of resource elements; in essence, it is the game and competition of economic interests.However, since most of the routes have been operated by the cooperation of major shipping alliances, the impact on the port industry is the first to be reflected in the following three aspects.

First, the survival and development of ports inherently need to rely on the support of shipping companies. After the formation of the shipping alliance, a single port cannot cope with the united shipping companies. The already fierce port competition will inevitably intensify.

At present, the shipping alliance has formed a "three pillars" posture. The major global routes such as Asia-Europe routes, trans-Pacific routes, and trans-Atlantic routes are pursuing a large ship strategy.

At the same time, the shipping alliance re-lays out the global route network, forming a multi-node, division and cooperation trunk and branch network. Shipping alliances have established their own hub ports around the world, and other ports use feeder transportation to allocate and dispatch transportation.

Therefore, the global port system will become more concentrated with this change, and each block will have only one or two hub ports. In order to compete for this position, the competition between neighboring ports will inevitably intensify.

Second, in the past, major hub ports relied on their geographical and monopoly advantages to generally have an advantageous position in negotiations with shipping companies and have a strong right to speak. However, the formation of the shipping alliance has changed the status of port and shipping companies. Because the port is no longer facing a single enterprise, but an alliance as a whole, the port enterprise has changed from a strong to a weak and gradually loses the right to speak.

Third, the development of container ports is like a siphon effect. A strong port will restrict the development of other neighboring ports. A large shipping company can bring millions or even millions of containers to a port. After the formation of the three major shipping alliances, when choosing a port to call, it largely determines the survival of a port. Once a shipping alliance decides to withdraw from a port, it will bring a fatal blow to that port. At this time, in order to survive, major ports were forced to compromise with shipping alliances and sacrifice port interests in exchange for route calls.

In the long run, this will greatly reduce the bargaining space for port operating fees, etc., hurt the development potential and profitability of the port, and restrict the development of the port.

As the mainstream choice of current shipping alliances, the emergence of future port alliances is an inevitable process of market evolution. With the popularization of digitalization and the concept of large logistics, shipping giants will extend their tentacles to all links of the supply chain, or to integrate all links of the supply chain. The difference may only lie in whether a few supply chain giants have been born, or a group of large logistics alliances have been formed. I personally think that from the current situation, the

latter is more likely. And the continuous development of digitalization and the maturity of shipping alliances undoubtedly provide a good opportunity for the development of the port alliance. With the development of the shipping market, all parties will understand and tolerate similar port alliances, just like understanding and affirming the shipping alliance.

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Appendix

Ocean Alliance's routes

Schedule 1 Far East-Northwest Europe Route

Route name	Call port
AEU1	Shanghai-Ningbo-Xiamen-Yantian-Singapore-Suez Canal-Felixstowe-Zeebrugge-Gdansk-Wilhelmshaven-Piraeus-Suez Canal-Singapore-Yantian-Shanghai
AEU3	Tianjin-Dalian-Qingdao-Shanghai-Ningbo-Singapore-Suez Canal-Piraeus-Rotterdam-Hamburg-Antwerp-Rotterdam-Suez Canal-Shanghai-Tianjin
AEU7	Xiamen-Nansha-Hong Kong-Yantian-Gaimei-Port Klang-Suez Canal-Piraeus-Hamburg-Rotterdam-Zeebrugge-Felixstowe-Suez Canal-Singapore-Hong Kong-Xiamen
AEU2	Tianjin-Busan-Ningbo-Shanghai-Yantian-Singapore-Suez Canal-Southampton-Dunkirk-Hamburg-Rotterdam-Southampton-Algeciras-Suez Canal-Klang-Tianjin
AEU6	Qingdao-Ningbo-Shanghai-Yantian-Singapore-Suez Canal-Algeciras-Le Havre-Rotterdam-Antwerp-Le Havre-Malta-Suez Canal-Jeddah-Jebel Ali-Port Klang-Qingdao
AEU5	Kaohsiung-Qingdao-Shanghai-Ningbo-Taipei-Yantian-Tanjong Parapas-Suez Canal-Rotterdam-Felixstowe-Hamburg-Rotterdam-Suez Canal-Colombo-Tanjong Parapas-Kaohsiung
AEU9	Ningbo-Shanghai-Kaohsiung-Yantian-Singapore-Colombo-Suez Canal-Antwerp-Hamburg-Rotterdam-Suez Canal-Klang-Ningbo

Schedule 2 Far East-Mediterranean route

AEM1	Qingdao-Shanghai-Ningbo-Kaohsiung-Hong Kong-Yantian-Singapore-Suez Canal-Piraeus-LaSpezia-Genoa-Foz-Valencia-Piraeus-SuezCanal-Colombo -Singapore -Hong Kong-Qingdao
AEM2	Qingdao-Busan-Shanghai-Ningbo-Nansha-Yantian-Singapore-Suez Canal-Malta-Valencia-Barcelona-Foss-Genoa-Malta-Beirut-SuezCanal-Jeddah-Jebel Ali-Klang-Xiamen-Qingdao
AEM3	Busan-Shanghai-Ningbo-Xiamen-Chiwan-Singapore-Suez Canal-Port Said-Beirut-Izmit-Ambali-Constanta-Odessa-Piraeus-Port Said-SuezCanal-Jeddah-Klang-Busan
AEM6	Shanghai-Ningbo-Busan-Chiwan-Singapore-SuezCanal-Malta-Koper-Triest e-Rijeka-Port Said-Suez Canal-Jeddah-Klang-Chiwan-Shanghai

Schedule 3 Far East-Southwest U.S. Route

AAS2	Fuqing-Nansha-Yantian-Xiamen-Los Angeles-Fuqing
CEN	Tianjin-Qingdao-Shanghai-Princeport-Los Angeles-Auckland-Tianjin
SEA2	(AWE5)-Klang-Singapore-LimChabang-Gaimei-Yantian-LosAngeles-Auckland-Yantian-(AWE5)
AAC2	Qingdao-Shanghai-Ningbo-Los Angeles-Auckland-Tokyo-Qingdao
AAS	Kaohsiung-Gaimei-Hong Kong-Yantian-Kaohsiung-Long Beach-Kaohsiung
AAS3	Taipei-Xiamen-Yantian-Los Angeles-Oakland-Taipei
AAS4	Hong Kong-Yantian-Kaohsiung-Taipei-LosAngeles-Auckland-Tacoma-Kaohsiung-Yantian
AAC4	Ningbo-Shanghai-Busan-Long Beach-Busan-Ningbo

Schedule 4 Far East-Northwest U.S. Route

MPNW	(MEX4)-Yantian-Xiamen-Ningbo-Shanghai-Busan-Seattle-Vancouver-Qingdao-(MEX4)
CPNW	HongKong-Yantian-Ningbo-Shanghai-PrincePort-Vancouver-Shanghai-Hong Kong
EPNW	Shanghai-Ningbo-Kaohsiung-Yantian-Tacoma-Vancouver-Tokyo-Osaka-Qingdao-Shanghai
OPNW	Shekou-HongKong-Yantian-Kaohsiung-Vancouver-Seattle-Busan-Kaohsiung-Shekou

Schedule 5 Far East-US East US Gulf Route

AWE1	Qingdao-Ningbo-Shanghai-Busan-Cologne-Savannah-Charleston-Boston-New York-Cologne-Qingdao
AWE2	Qingdao-Ningbo-Shanghai-Busan-New York-Norfolk-Savannah-Qingdao
AWE3	Xiamen-Kaohsiung-Hong Kong-Yantian-Cologne-Savannah-New York-Norfolk-Baltimore-Xiamen
AWE4	Gaimei-Hong Kong-Yantian-Xiamen-Shanghai-Cologne-New York-Savannah-Charleston-Gaimei
AWE5	SEA2)-Yantian-Gaimei-Singapore-Klang-Colombo-Halifax-New York-Norfolk-Savannah-Charleston-Klang-(SEA2)
GME	Shanghai-Ningbo-Xiamen-Yantian-Houston-Mobile-Tampa-Shanghai
GME2	Singapore-Hong Kong-Shekou-Ningbo-Shanghai-Busan-Houston-Mobile-New Orleans-Tampa-Miami-Singapore

Schedule 6 Transatlantic Routes

MENA (non –alliance)	Foz-Genoa-La Spezia-Barcelona-Valencia-New York-Norfolk-Savannah-Miami-Algeciras-Foz
TAE	Southampton-Antwerp-Rotterdam-Bremerhaven-Le Havre-New York-Norfolk-Savannah-Charleston-Southampton
EAG	LeHavre-Antwerp-Rotterdam-Bremerhaven-Charleston-Miami-Veracruz-Altamira-Houston-New Orleans-Le Havre

Schedule 7 Far East-Middle East Route

MEX	Qingdao-Shanghai-Ningbo-Nansha-Singapore-Jebel Ali-Abu Dhabi-Dammam-Abu Dhabi-Klang-Qingdao
MEX2	Lianyungang-Qingdao-Shanghai-Hong Kong-Shekou-Singapore-Jebel Ali-Hamad-Dammam-Jubail-Abu Dhabi-Singapore-Nansha-Lianyungang
MEX4	(MPNW)-Qingdao-Ningbo-Shekou-Singapore-Jebel Ali-Dammam-Bahrain-Sohar-Singapore-(MPNW)
MEX5	Shanghai-Ningbo-Taipei-Shekou-Tanjong Palapas-Klang-Jebel Ali-Umm Qasal-Jebel Ali-Klang-Hong Kong-Shanghai

Schedule 8 Far East-Red Sea Route

RES1	Tianjin-Qingdao-Ningbo-Nansha-Shekou-Singapore-Jeddah-Sokana-Aqaba-Jeddah-Klang-Ningbo-Tianjin
RES2	Shanghai-Ningbo-Taipei-Xiamen-Shekou-Singapore-Djibouti-Jeddah-Sokana-Aqaba-Djibouti-Singapore-Shanghai

Data source:China Shipping Net

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